Screening Criteria Scoring Definitions

SAFETY (25%)

Collision Reduction Benefit

This category measures potential collision reduction benefit for the proposed improvement. Benefits are calculated using the WSDOT collision reduction spreadsheet and its collision reduction factors for specific types of improvements. Benefits are expressed in dollars for reductions in fatalities, disabling injuries, evident injuries, possible injuries and property damage only. Because the collision data has been collected for the past six years, the total reduction benefit is then divided by six to provide average annual benefits. Improvements with benefits totaling more than $750,000 are given a score of 5 indicating the greatest benefits that may potentially be realized. Benefits totaling less than $100,000 are given a score of 1. Intermediate scores of 2, 3, and 4 are given for benefits ranging from $100,000 to $250,000, $250,000 to $500,000, and $500,000 to $750,000, respectively.

Non-Motorized Conflicts & Crossings

Scoring for this category relates to the number of traffic conflicts and overall volume of interactions between pedestrians/bicyclists and vehicles. It also reflects the type of control that is proposed to handle crossing movements (e.g. signalized or unsignalized) and whether a grade separation of vehicular traffic movements is provided.

Improvement options that reduce traffic volumes (versus baseline conditions), provide signalized crossings and grade-separate traffic movements would be given a score of 5. On the other end of the spectrum, improvements that do not reduce traffic conflicts or volumes, provide no signal(s) for crossing movements, or maintain at-grade intersections would be given a score of 1. Intermediate scores of 4, 3, and 2 reflect the degree of which conflicts/volumes are reduced, how effective the type of control is for non-motorized movements, and whether separation of vehicular traffic movements is provided.

MOBILITY & ACCESS (25%)

Traffic Operations

Scoring for this category is represented by the standard traffic congestion measure known as level of service (LOS). This measure is presented in the 2000 Highway Capacity

Manual (TRB) and is used as the generic measure of traffic operations for various transportation facilities ranging from freeway segments to pedestrian crosswalks. For signalized intersections, LOS is specifically represented by average vehicle delays (seconds per vehicle) with grades of A through F that reflect low to high delays, respectively. An improvement option given a score of 1 would reflect high delays and congestion levels with an LOS rating of "F". On the other hand, a score of 5 would reflect low delays and congestion with an LOS rating of "A".

Accommodates Transit Service

The scoring range for this category describes the potential difficulty of implementing transit enhancements for a given improvement option. Transit enhancements may include elements such as queue jump (transit-only) lanes, exclusive transit signal phases, pull-out areas for bus stops, etc. Also, the potential transit environment is taken into consideration and may reflect the spacing of intersections (intersections too close together may not be transit friendly), bus stop potential (are there good locations to capture large numbers of riders), and available right-of-way to be able to implement transit enhancements.

A score of 5 for this criterion would represent an option for which potential transit enhancements would be easy to implement and transit service could be promising in terms of the surrounding physical and land use environment. A score of 1 would represent an option that may not be supportive of transit enhancements or service. Intermediate scores of 4, 3, and 2 reflect the degree of difficulty of implementing the above transit enhancements and how transit-friendly the surrounding area may be.

Consistency with State Access Management Master Plan

This category measures the proposed improvement's consistency or inconsistency with the Access Management Master Plan; in this case, how well the improvement measures up to the requirements for a partially controlled limited access facility. The highest score is given to an improvement that improves upon the access management plan by consolidating access to SR9 while addressing community-level access concerns. The second highest score is given to an improvement that consolidates access on SR 9 but may not support local access concerns. A score of 3 is given to the improvement that is consistent with the master plan but does not increase or decrease access on SR 9. A score of 2 is awarded to the improvement that is not consistent with the master plan by violating an access control criterion.

At interchanges this occurs when full access control criteria are violated or when access control along the crossroad does not meet the requirements in the WSDOT Design Manual (Chapter 1430). At intersections, access must be controlled within 300 feet of the intersection centerline. For private driveways, only approach Types A, B, C, or F are allowed in accordance with the Design Manual Chapter 1420. Additionally, on a principal arterial such as SR 9, access approaches are limited to two per side per mile with only one approach per parcel. Finally, a score of 1 is given to an improvement that violates more than one of the above access control criteria.

COMMUNITY SUPPORT (20%)

Community Support

This category measures an agency's and community's support for a particular improvement. The score presented here for each option is an average of scores received from the agencies on the CWG. A score of 5 indicates substantial community and agency support of the proposed improvement. A score of 4 indicates a moderate level of community support. Neutral community disposition toward an improvement option is rated a 3. Moderate opposition by the community toward the improvement is scored a 2. Substantial community and agency opposition (along with little to no support) toward the improvement is given a score of 1.

ENVIRONMENTAL (15%)

Wetlands

This category measures potential impacts to wetland resources near the study intersection locations. This rating is based on whether the footprint of proposed improvements would touch wetland areas, as identified by GIS mapping. Where a substantial portion of an identified wetland area would be filled, this impact is rated 1 (1 acre or more) or 2 (.5 acre to 1 acre), as very high or high; where little or no impact would occur or where wetlands are not present, this impact is rated 4 or 5, low or very low (less than .25 acre and no wetland area filled, respectively). Moderate impacts (.25 to .50 acre) receive a rating of 3.

Wildlife/Habitat

This category measures the impact of the proposed options on wildlife species and habitat areas near the study intersection locations. If the footprint of a proposed option would be within a priority wildlife or habitat area as identified by GIS mapping, or if it would be within a priority or wildlife habitat buffer area, the impact is considered to have a rating of 1 or 2, very high or high; where a known wildlife mitigation area would be encroached on by proposed improvements or where there would be no impact on these areas, the impact is rated 4 or 5, low or very low. Moderate impacts are those where a priority wildlife or habitat area or buffer would be encroached on by improvements and receive a rating of 3.

Streams/Waterways

This category measures the impact of the proposed options on waterways in the study intersection locations as identified by GIS mapping as well as required waterway relocations as identified through the design process. Where the footprint of one of the options would encroach within 25 feet of a waterway or require the relocation of a waterway with known fish habitat, the impact is rated 1, very high; where the footprint of an option would encroach within 50 feet of a waterways or require the relocation of a waterway, the impact is rated 2, high; where little (new roadway within 1,000 feet of

waterway) or no encroachment on waterways would occur, the rating is 4 or 5, low or very low. Moderate encroachment (within 100 feet of waterway) is rated 3.

Floodplains

This category measures the impact of the proposed options on floodplain areas near the study area intersection locations as identified by GIS mapping. Where proposed improvements occur within identified floodplain locations the impact is rated 1 (10.0 or more acres) or 2 (7.0-10.0 acres), very high or high, and where improvements are not within floodplain locations the impact is rated 5, or very low. Low and moderate impacts are rated 4 (less than 4 acres) and 3 (4-7.0 acres).

Farmlands

This category measures the impact on farmland areas near the study intersection locations. GIS mapping identified farmland of statewide importance soils and prime farmland soils along the study area corridor. Zoning and whether the improvements would be outside the right of way were also considered. Because potential impacts to prime, unique or farmland of statewide importance (farmland soils) are considered most significant, where a proposed improvement would impact 15 or more acres of farmland soils outside of the right of way and within land zoned for agricultural use, the impact is rated 1, or very high. Where potential improvements would affect 5-15 acres of farmland soils outside of the right of way in agriculture zones, the rating is 2, high. Where improvements would result in a moderate amount (less than 5 acres) of farmland soils in agriculture zones and outside of the right of way, the impact is rated 3, or moderate. Where improvements would result in a substantial area of farmland soils (more than 5 acres) outside of the right of way but in a developed or non-agricultural zone, the impact is also rated 3. Where less than 5 acres of farmland soils would be impacted outside of the right of way but in a non agricultural zone, the impact is rated 4, or low. When no soil impacts would occur, the rating is 5, or very low.

Visual Quality

This category measures the potential impact on views in the study intersection areas. Potential view impacts are determined by the size and shape of structures, their visibility to viewers in, or near, intersection locations, and the potential amount of change that would occur to the existing view setting. Options that would include visible elevated structures, or that would result in substantial changes to existing views, are rated 1 or 2, very high or high impacts on visual quality depending on their setting. Minor changes or no changes to the existing rural or urban view setting are rated 4 or 5, low or very low. Moderate alterations to existing rural views are rated 3.

CONSTRUCTABILITY (15%)

Construction Cost

This category measures the capital construction cost impacts of the proposed improvement. Capital cost estimates were developed for each improvement based on

certain specific construction elements. These cost estimates are provided in 2007 dollars and is meant to provide one means of differentiating the improvement using capital cost. It is not meant to provide programmatic budget estimation. The improvement is awarded a score of 1, representing the highest cost impact (over $50 million), to a score of 5 for the lowest cost impact (under $5 million). Intermediate scores of 2, 3, and 4 are given for impacts ranging from $25 million to $50 million, $15 million to $25 million, and $5 million to $15 million, respectively.

Right-of-Way Acquisition

This category measures the impact of the proposed improvement on private property by quantifying the amount of additional right of way required. These ratings are based on an estimation of private property required by a concept's footprint measured in square feet (SF) and converted to dollars. The dollar amount required for acquisition is based on the square foot property value of that parcel as listed in Snohomish County's tax assessor database. An improvement with right of way acquisition totaling more than $1 million would be given a rating of 1. A rating of 2 is awarded for right of way acquisition costing more than $400,000 up to $1 million. A rating of 3 is given to the improvement with acquisition cost of $100,000 to $400,000. An improvement with less than $100,000 in acquisition cost will be given a score of 4 and a score of 5 is awarded for no right of way acquisition.

Utility Relocations

This category measures the impact of the proposed improvement on utilities known by the project team to exist within the project corridor. Impacts were assessed to vary from none (just final grade adjustments for utility frames and covers), score 5, to very high with major transmission pipe or transmission line relocations resulting in a score of 1. Aerial lines on utility poles requiring relocation is considered a low impact and rated a 4. Relocation of buried utility ducts or small diameter pipes is moderate and considered a 3. Potential relocation of duct banks, large diameter pipes, or vault-like facilities is a high impact and is rated a 2.

Residential and/or Business Displacements

This category measures the impact of displacements the proposed improvements would potentially have on residences and businesses. As in the case of right of way acquisitions residential and business displacements were not expressed in dollars to avoid overemphasizing cost. Double counting right of way acquisition and residential or business displacement is avoided by estimating displacements only by the number of domestic dwelling units or business facilities impacted and without regard for the value of the residence or business space. This also avoids the variability and subjectivity of assigning a value to a house or retail/office structure. An improvement with no displacements is rated a 5. One residence or business displacement is given a 4. Two residences or businesses requiring displacement is rated a 3. Three to five displacements of residences and/or businesses is rated a 2. More than five displacements rates a score of 1.

SR 9 RDP - Improvement Options Screening Criteria Scoring Sheet	Safety - 25%		Mobility & Access - 25%				Community Support - 20%	Environmental Impacts - 15%						Constructability - 15%				
Intersection *Note : Highlighted rows (in yellow) indicate final selected options to be carried forward into prioritization process based on 2030 corridor vision*	Collision Reduction Benefit	Non-Motorized Conflicts and Crossings	Traffic Operations	Non-Motorized Movements	Accommodates Future Transit Service/Elements	Consistent with State Access Management Plan	Community Support	Wetlands	Wildlife/Habitat	Streams/Waterways	Floodplains	Farmlands	Visual	Construction Cost	Right-of-Way Acquisition	Utility Relocations	Residential and/or Business Displacement	Totals
SR 530 (Burke Ave)																		
(1) Conventional traffic signal; synchronize with signal at Division	3	3	4	4	3	3	5	5	5	5	4	3	5	5	5	5	5	4.1
(2) Realign SR 530 west of SR 9 to provide direct connection to Burke Ave (4-leg signalized) intersection	3	3	4	4	3	3	3	5	5	4	4	3	3	4	4	3	5	3.5
SR 530 (Division Street)																		
(1) Widen EB approach for dual LT lanes – requires two NB receiving lanes; match with Burke (1)	2	1	3	3	3	3	5	5	5	5	4	3	4	5	5	3	5	3.6
(2) Redistribute volumes to reflect new trip patterns with Burke Option (2)	1	2	3	4	3	3	3	5	5	5	5	5	5	5	5	5	5	3.2
84th Street NE																		
(1) Two-lane roundabout with dual lane entries and exits	4	1	1	4	4	3	4	4	5	5	5	3	4	5	4	4	5	3.5
(2) NB & SB additional through lanes (one lane in each direction) tapering back down to single NB & SB lanes + dual LT lanes for SB – requires two SB receiving lanes	3	1	3	3	3	3	5	4	5	5	5	3	4	5	4	4	5	3.7
(3) Full Interchange (diamond) with 4-lane SR 9 elevated over 84th Street NE	4	3	4	5	4	3	5	2	5	5	5	3	2	3	3	4	4	3.9
SR 92																		
(1) Dual LT lanes for WB approach	1	1	3	3	3	3	5	1	5	5	5	4	5	5	3	3	5	3.3
Lundeen Parkway																		
(1) Widening for NB & SB to accommodate three lanes each direction (for NB include one exclusive right lane turn and one shared right turn/through lane to handle heavy RT)	4	1	3	3	4	3	5	3	2	1	5	4	4	5	5	3	5	3.8
(2) Grade separation that reflects 4-lane NB/SB elevated facility	5	3	5	5	4	3	4	2	2	1	5	4	3	3	5	3	5	4.0
SR 204																		
(1) Widening for NB & SB to accommodate three lanes each direction	2	1	3	3	5	3	5	3	5	5	5	4	4	5	5	3	5	3.6
(2) Grade separation that reflects 4-lane NB/SB elevated facility	2	3	5	5	4	3	5	2	5	5	5	3	2	1	1	2	5	3.4
Market Place																		
(1) Widening for NB & SB to accommodate three lanes each direction, add EB right turn lane	3	1	2	3	4	3	3	3	4	5	5	4	4	5	4	2	5	3.2
(2) Option (1) but add EB through lane in place of right turn lane	3	1	3	3	5	3	5	3	4	5	5	4	4	5	4	2	5	3.7
(3) Grade separation for NB & SB through traffic, add EB right turn lane	3	4	5	5	4	3	5	2	4	5	5	3	2	1	1	2	5	3.7
20th Street SE																		
(1) Widening for NB & SB to accommodate three lanes each direction, dual WB-to-SB left turn lanes, EB right turn pocket	3	1	3	3	4	3	4	4	5	4	5	4	4	4	4	4	5	3.5
(2) Grade separation with SR 9 elevated over 20th Street SE	4	4	5	5	4	3	4	4	5	4	5	4	2	2	4	1	5	3.9
Bickford Avenue																		
(1) Close Avenue D intersection and add new signal at 20th Street	1	3	3	4	4	3	5	5	5	5	5	3	5	5	5	5	5	3.6
(2) Full interchange at Bickford (SPUI) and close intersection at Avenue D	2	3	5	5	3	2	3	4	5	5	5	3	2	3	2	1	3	3.1
Marsh Road																		
(1) Widening for NB & SB to accommodate three lanes in each direction	2	2	4	3	4	3	3	5	5	4	1	3	4	5	4	3	5	3.2
(2) Grade separation with SR 9 elevated over Marsh Road	2	3	5	5	4	3	3	3	5	4	1	3	2	2	4	1	5	3.1
(3) EB-to-NB flyover (one-lane structure)	2	4	4	4	4	3	2	5	5	4	2	3	2	3	4	1	5	3.0
US 2 Ramps																		
(1) Ramp Widening Option	4	4	4	4	3	3	5	4	5	5	5	5	3	5	5	3	5	4.3
(2) Partial Cloverleaf Option	4	3	5	4	3	3	2	2	5	1	5	5	3	4	5	3	5	3.5
(3) Hybrid Option	4	3	5	4	3	3	5	2	5	1	5	5	3	4	5	3	5	4.1

SCREENING CRITERIA SUMMARY

Screening Criteria Element		*Score*	*Description*
Safety - 25%	Collision Reduction Benefit (75%)	1	< $100,000 in accident reduction benefit annually
		2	$100,000 to $250,000 in accident reduction benefit annually
		3	$250,000 to $500,000 in accident reduction benefit annually
		4	$500,000 to $750,000 in accident reduction benefit annually
		5	> $750,000 in accident reduction benefit annually
	Non-Motorized Conflicts (25%)	1	No reduction in traffic/non-motorized conflicts and volumes
		2	Some reduction in traffic/non-motorized conflicts and volumes
		3	Moderate reduction in traffic/non-motorized conflicts and volumes
		4	Moderately high reduction in traffic/non-motorized conflicts and volumes
		5	Removes traffic/non-motorized conflicts and volumes
Mobility and Accessibility - 25%	Traffic Operations (50%)	1	LOS F for critical movement(s) or overall Intersection (> 80 sec/veh)
		2	LOS E for critical movement(s) or overall intersection (55-80 sec/veh)
		3	LOS D for critical movement(s) or overall intersection (35-55 sec/veh)
		4	LOS C for critical movement(s) or overall intersection (20-35 sec/veh)
		5	LOS A/B for critical movement(s) or overall intersection (< 20 sec/veh)
	Non-Motorized Movements (10%)	1	Does not provide signalized crossings, creates long crossing distances and intersection wait/travel times
		2	Does not provide signalized crossings but reduces crossing distances and intersection wait/travel times
		3	Provides signalized crossing but creates longer crossing distances and wait/travel times
		4	Provides signalized crossings and maintains baseline crossing distances and wait/travel times
		5	Provides signalized crossings and reduces crossing distances and wait/travel times
	Accommodates Transit Service (15%)	1	Very difficult to implement transit enhancements - Significant ROW requirements, closely spaced intersections, few (if any) potential stop locations, etc
		2	Difficult to implement transit enhancements
		3	Moderate difficulty for implementing transit enhancements
		4	Easy to moderate implementation of transit enhancements
		5	Easy to implement transit enhancements (such as queue jump lanes, transit signal priority, etc) - Ample ROW, several potential stop locations, suitable intersection spacings, etc
	Consistent with State Access Management Master Plan (25%)	1	Not consistent with access management master plan. Violates more than one access control criteria.
		2	Not consistent with access management master plan. Violates one access control criterion.
		3	Consistent with access management master plan. No change to access on SR 9.
		4	Improves access management master plan by consolidating access to SR 9
		5	Improves upon access management master plan by consolidating access to SR 9 while addressing community-level access issues
Community Support - 20%	Community Support	1	Substantial community and agency opposition to proposed improvement
		2	Moderate community and agency opposition to proposed improvement
		3	Neutral community disposition toward proposed improvement
		4	Moderate community and agency support of proposed improvement
		5	Substantial community and agency support of proposed improvement
Environmental - 15%	Wetlands	1	Substantial area of wetland filled (1.0 acres or more)
		2	Large area of potential wetland filled (0.50 - 1.0 acre)
		3	Moderate area of potential wetland filled (0.25 - 0.50 acre)
		4	Small area of potential wetland filled (< 0.25 acre)
		5	No wetland area filled
	Wildlife/Habitat	1	Priority wildlife or habitat area within roadway
		2	Priortiy wildlife or habitat area encroached on by roadway
		3	Priority wildlife or habitat area buffer within roadway
		4	Wildlife or habitat buffer area or mitigation area encroached on by roadway
		5	No habitat area or buffer present or affected
	Streams/Waterways	1	Project would encroach within 25 feet of waterway or require relocation of waterway with fish habitat
		2	Project would encroach within 50 feet of waterway or require relocation of waterway
		3	Project would encroach within 100 feet of waterway
		4	Project would place roadway closer to waterway identified within 1000 ft of roadway
		5	No stream encroachment would occur
	Floodplains	1	Potential improvements would occur within floodplain areas (> 10.0 acres)
		2	Potential improvements would occur largely within a floodplain area (7.0 - 10.0 acres)
		3	Potential improvements would affect a moderate amount of floodplain area (4.0 - 7.0 acres)
		4	Potential improvements would affect a low amount of floodplain area (< 4.0 acres)
		5	Potential improvements would not affect floodplain area
	Farmlands	1	High impacts (> 15.0 acres) farmland soils outside ROW and in agricultural zone
		2	Would affect a substantial area (5.0 - 15.0 acres) of farmland soils outside ROW and in agricultural zone
		3	Would affect a moderate area of farmland soils (< 5.0 acres) outside ROW and in agricultural zone
		4	Would affect a moderate area of prime farmland soils (< 5.0 acres) in developed area or non agricultural zone
		5	No impacts/inside ROW
	Visual	1	Highly visible elevated structures or very high impacts on existing rural to semi rural visual setting
		2	Highly visible structures and/or high impacts on existing urbanized visual setting
		3	Moderate impacts (e.g., the addition of at-grade roadway) on existing rural setting
		4	Low impacts (e.g., additional turn lane at an intersection) on existing visual setting
		5	No impacts on existing visual setting
Constructability - 15%	Construction Cost (50%)	1	Over $50M
		2	$25M to $50M
		3	$15M to $25M
		4	$5M to $15M
		5	Under $5M
	Right-of-Way Acquisition (30%)	1	More than $1M in R/W acquisition cost
		2	$400> R/W acquisition cost >$1M
		3	$100,000> R/W acquisition cost >$400,000
		4	Less than $100,000 in R/W acquisition cost
		5	None
	Utility Relocations (10%)	1	Transmission pipe/line relocation
		2	Potential for utility duct, large diameter pipes, or vault type facilities relocation
		3	Buried lines relocation
		4	Aerial lines on utility poles relocation
		5	None (just final grade adjustments)
	Residential and/or Business Displacement (10%)	1	More than 5 residences or businesses
		2	3 to 5 residences or businesses
		3	2 residences or businesses
		4	1 residence or business
		5	None